

Patient Care Priorities: Before the Transfer



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Objectives

- Describe rural trauma system ATLS priorities for remote facilities.
- Differentiate the unique aspects of rural trauma care in remote facilities.
- Outline remedies for rural trauma facilities to better equal urban trauma care results.
- Trauma patient radiology and patient resuscitation formulas for remote facilities while waiting for transport.

Rural Trauma System ATLS Methods

- Primary Survey
- Treat ABCDE's
- Recognize Major Injury
 - Triage
 - Treat
 - Transfer
 - “Regional Oversight” of Trauma Care

Trauma Care – Current State of the Art

- Effective EMS delivery from scene
- ATLS primary survey
 - FAST plus portable chest, pelvis and ? c-spine x-rays
- Early & aggressive medical treatment of the ABCDE's
- Early surgical treatment of the ABCDE's if medical treatment inadequate
- Teleradiology; ? Telemedicine
- Get help; Triage and Transport

The Primary Survey



- A. **Definitive Airway**
- B. **Chest Tube(s) ± Airway**
- C. **Volume Resuscitation:**
 - **Hemostatic Resuscitation**
 - **Damage Control Surgery**
- D. **Spine Stabilization/GCS**
- E. **Body temperature preservation**
- F. **X-Rays and Diagnostic Studies**
- G. **Call for help and transport and transfer**

Unique Aspects of Rural Trauma Care

- **Rural Trauma 2x's the Mortality vs. Urban Trauma**
- **Rural America**
 - $\leq 25\%$ US population**
 - $\geq 50\%$ US car crash fatalities**

MT – Highest Vehicular Mortality Rate in U.S. for miles traveled (2006 U.S. National Highway Traffic Safety Administration, *Traffic Safety Facts*)

- **2.3 deaths/Million total Vehicle miles traveled (VMT)**
- **Massachusetts best at 0.8 deaths/VMT**
- **US average 1.4 deaths/VMT**

Why The Difference in Trauma Outcome Rural vs. Urban

- a) Geography – Long time for “everything”
- b) Lonely Highways
- c) Perceived discrepancy in trauma care
 - Low volume; Limited experience; Inadequate training;
Limited CME; Lack of sub specialists

NTDB Experience 2007

- Trauma Death Rate 3.2%
 - Despite nearly twice the national avg. patients with ISS > 16. (28.9% vs. 16.5%)
- Comparable Hospital Death Rate 3.6%
- National Average Trauma Death Rate 4.8% (2006)

Remedies to ↓ Gap between Rural & Urban Trauma Care

- Improve prehospital communication technology
- State of the art trauma care training
- Rapid transport for transfers
- ICU care during transport
- Telepresence applications
- Trust among caregivers
- Complex networking with preconceived working guidelines & pathways of care
- Collegial relationship between Regional Trauma Centers & referring hospitals & clinics

Prehospital

1. More satellite phone technology
2. Ambulance internet access
3. ↑ Wireless technology linking “moving” ambulances to ER/Trauma Centers

Hospitals - Current

- Radio/telephone/fax communications
- Usually limited/inadequate/wrong
- Takes 2 to “fail to communicate”

Hospitals - Future

- Prehospital communication w/o failure
- ER-telemedicine
- Teleradiology (the future is now)
- Networking the above to save valuable time to definitive care & treatment in rural remote areas

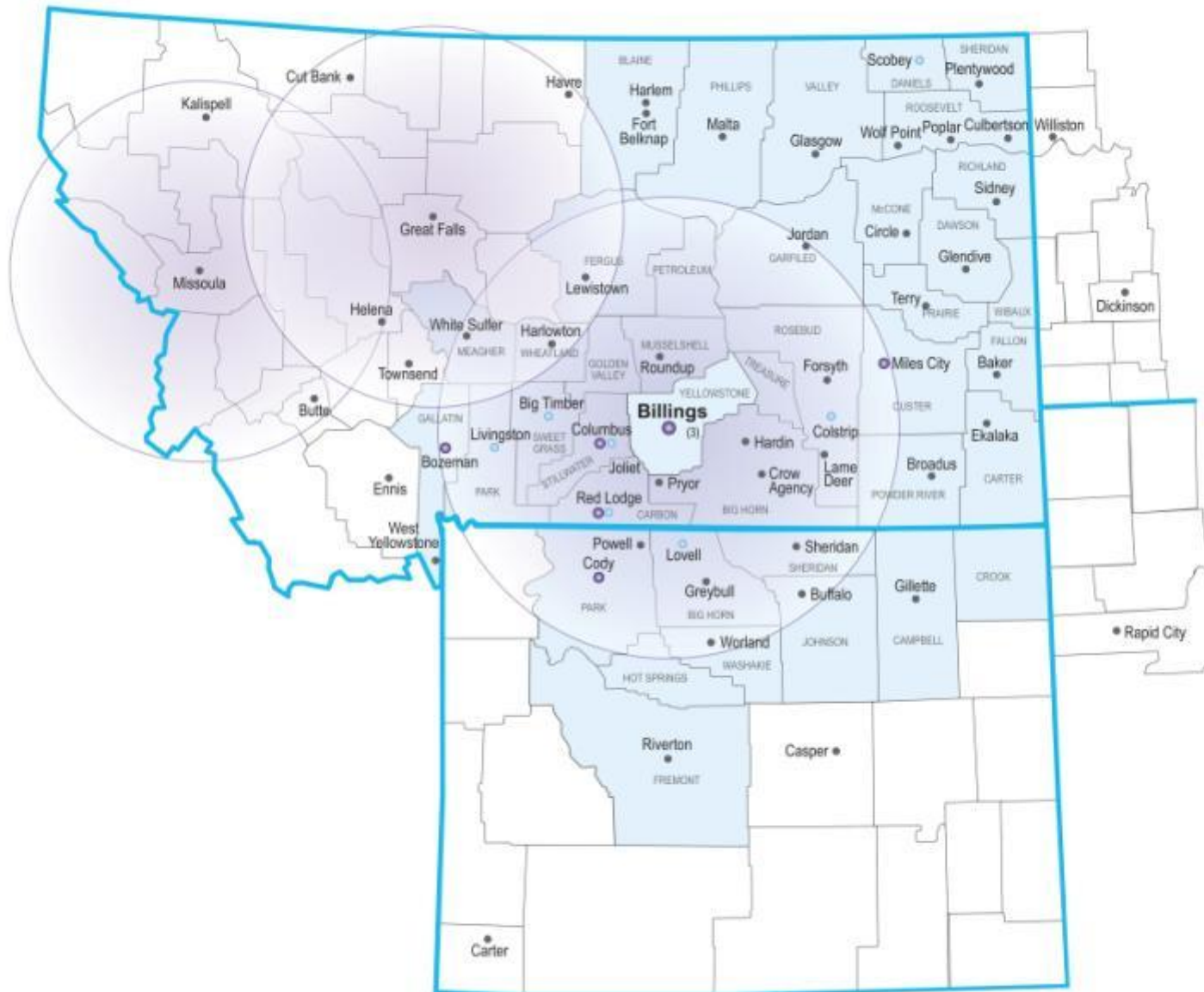
Trauma Patient Volume Preservation and Resuscitation

- Fluid resuscitation
- Hypotensive resuscitation
- Hemostatic resuscitation
 - Whole Blood
 - FFP:Blood =1:1
 - PRBC:Platelets = 6:1
- Direct Wound Pressure
- Tourniquets
- Hemostatic Dressings
- Intercontinental military trauma system -
damage control surgery and definitive surgery

Methods of Rural Trauma Transport



Local Medical Geography



Ground Transport



- **Immediate**
- **Advanced vs. Basic Life Support**
- **Resource Dependent**

Helicopter Transport



- **20-60 minutes**
- **Advanced Life Support**
- **Time for some radiology**
- **Hemostatic resuscitation**
- **Distance restrictions**
- **Limited #**
- **Weather variables**

Fixed Wing Transport

- 
- **90-150 minutes**
 - **Advanced Life Support**
 - **Time for plain films and some CT scanning**
 - **Hemostatic resuscitation**
 - **Limited #**
 - **Weather variables**







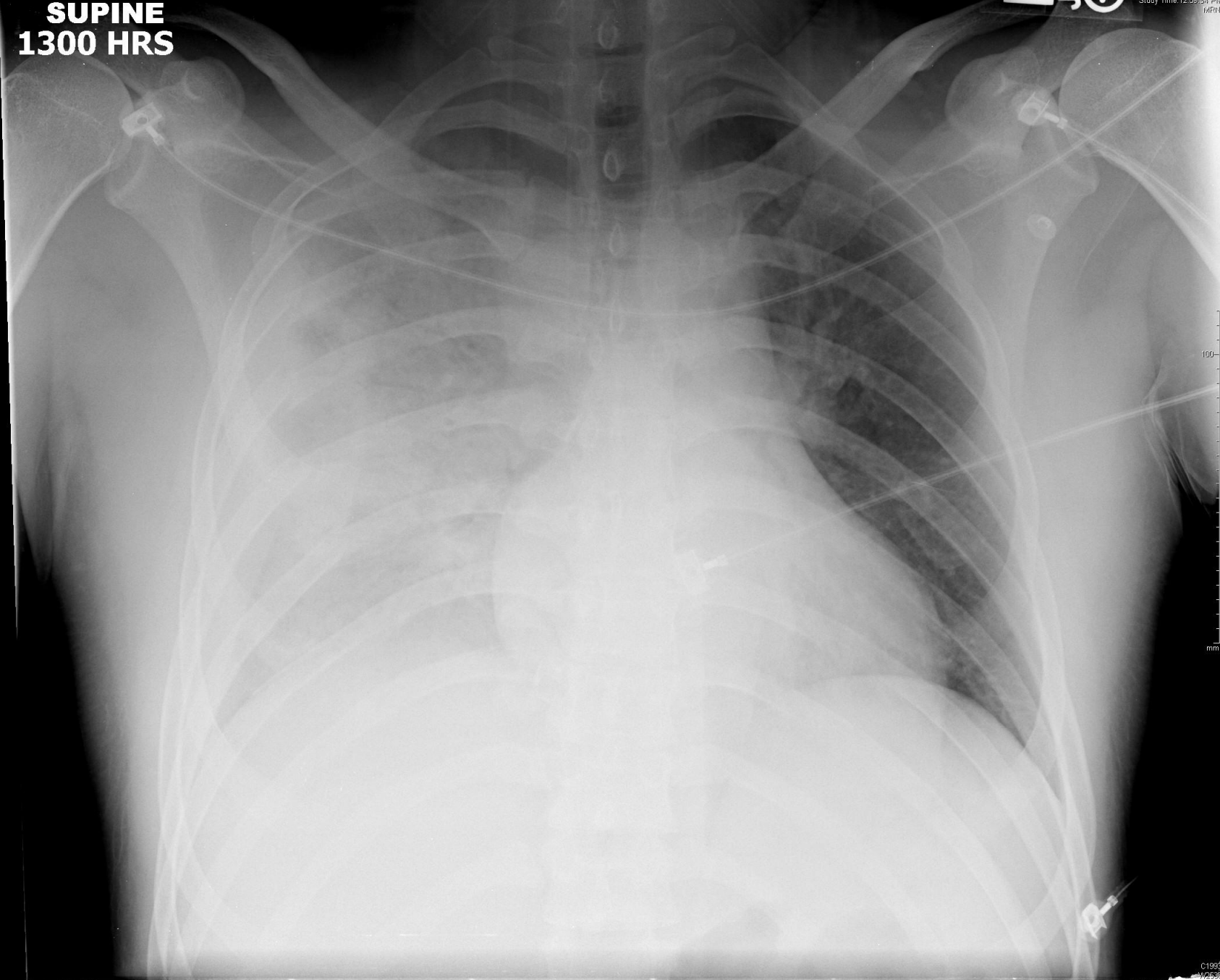
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**Portable
SUPINE
1300 HRS**

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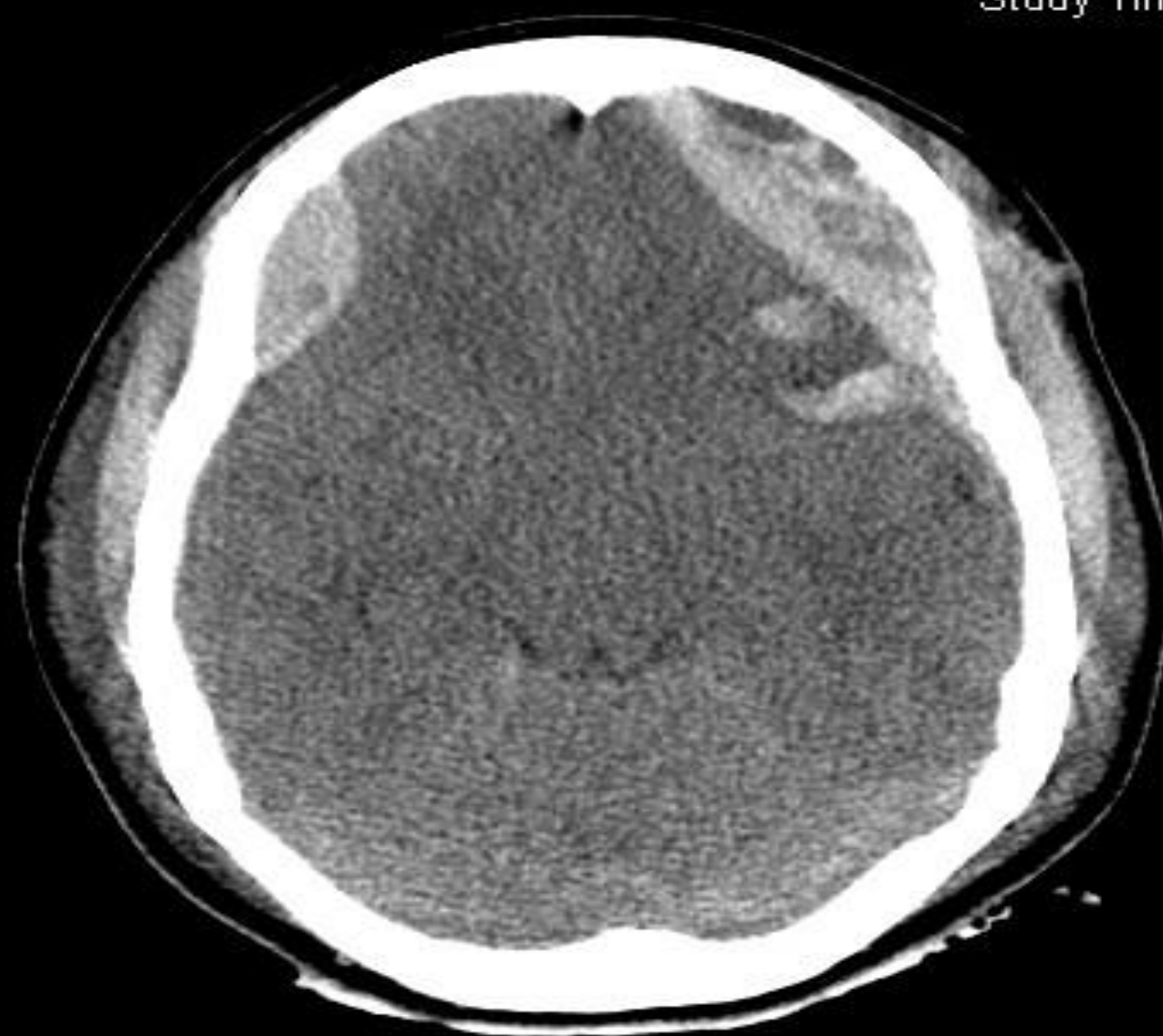


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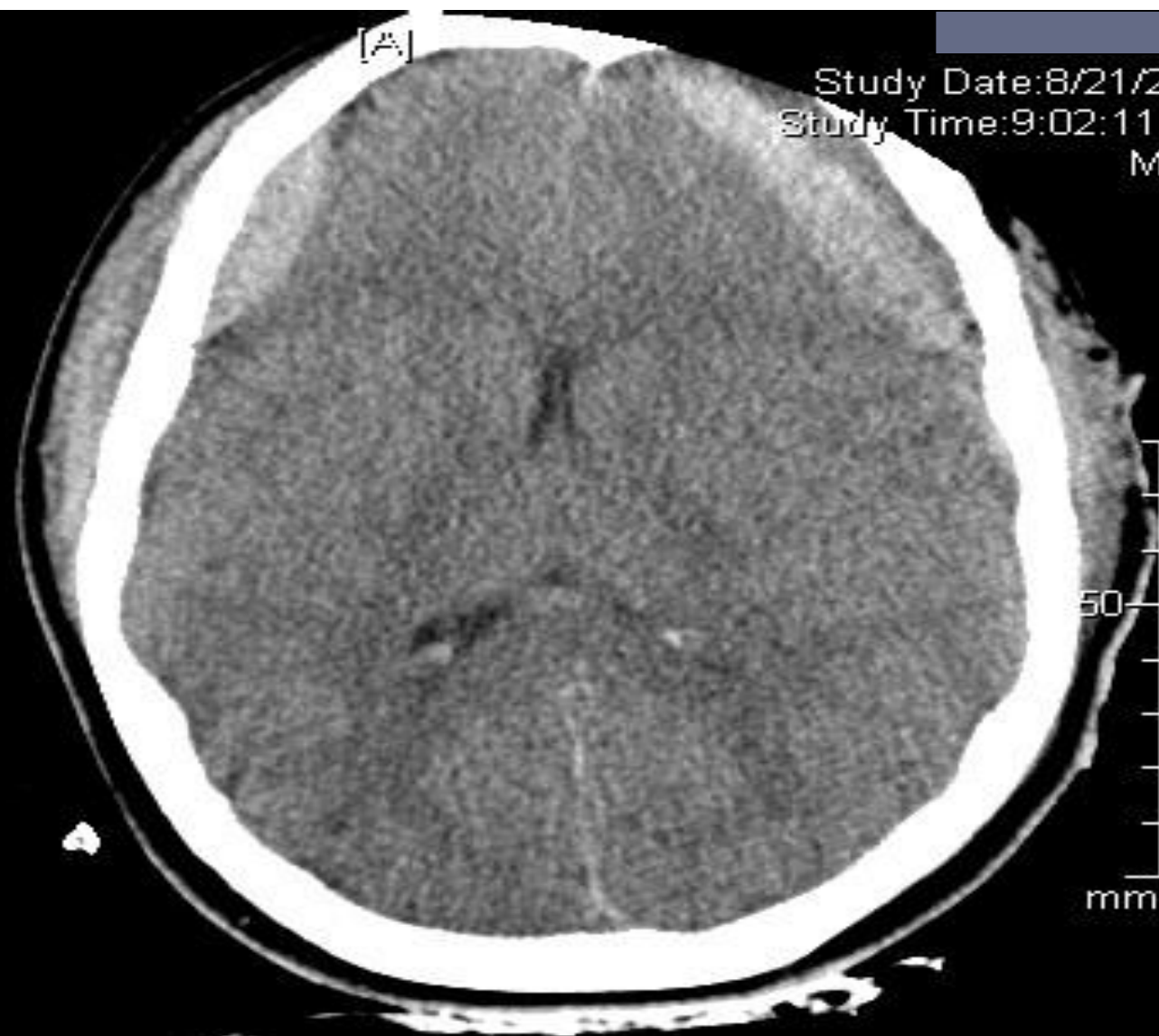
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Summary



**TIMELY ATLS CARE OF THE
RURAL TRAUMA PATIENT
WILL IMPROVE MORBIDITY
AND DECREASE MORTALITY**

**THANK YOU FOR YOUR
ATTENDANCE!**